Brooks (W. K.)

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By W. K. Brooks.

(Read November, 1887.)

Anything which is in any way connected with the discovery of America has an especial interest at a time when the world is preparing to unite in the celebration of the four hundredth anniversary of the landing of Columbus, and a contribution to our knowledge of the people who were the first to welcome the discoverer must be peculiarly acceptable at this time. This paper gives an account of a number of skulls and other human bones belonging to the race of Indians which inhabited the islands upon which Columbus made his first landing, on October 12, 1492. As these people informed him that the islands were called the Lucayas, I shall speak of them as the Lucayans, although he states that they called themselves Ceboynas. The tragic fate which overtook these simple and innocent people as the result of the appearance among them of the Spaniards, whom they welcomed as gods, is a matter of familiar history. Their destruction was so rapid that in less than twenty years the whole race, estimated by the conquerors at 40,000 persons, was totally exterminated. The capture of Lucayans as slaves for service in the gold mines of New Spain began in the year 1500; and in 1508, or only sixteen years after the discovery, the Spaniards received from the king official permission to capture the whole race, and the work was carried on so thoroughly and relentlessly, with the aid of trained blood-hounds, that the islands, several hundred in number, were completely depopulated, and the whole Lucayan race perished in Hayti under task-masters so heartless that the case of the Spaniard who, at the end of three months, had killed all but thirty of his share of three hundred, is no worse than many others recorded by Las Cassas.

The fact that these people were the first inhabitants of the New World to be seen by our race gives a peculiar interest to the Lucayans, and this interest is heightened by their dramatic fate, and by the fact that all traces of their existence were almost completely obliterated by the conquerors.

Only a single word remains as a monument for the Lucayans. The word "hammock," and the article of luxurious ease which it designates, were found among them by Columbus on the second day of his visit; but this word, which has passed with the hammock itself to all countries, until it has become current throughout the whole world, is the only permanent record of the existence of this nation of comfort-loving people.

The Spaniards had no time nor inclination for the study of anthropology, and their random notes give us little or no knowledge of the people they destroyed, and I was therefore greatly pleased when I obtained in the Bahamas—the modern name for the Lucayan Islands—the material for a satisfactory study of their anatomical characteristics; the more so because the circumstances under which the specimens were obtained are of such a character as to show that there is little reason to hope for additional information without the aid of greater facilities for investigation than are at all likely to present themselves.

The Bahamas are a group of small coral islands extending nearly north and south for a distance of nearly 600 miles, and from 50 to 200 miles distant from the coast of Florida. Like all limestone regions they abound in caves, and within a few years the earth in the bottoms of these caves, a red clay rich in phosphates, has been found to be a valuable fertilizer. All the known caves have

been dug out, and the clay with its contents has been shipped away from the islands, and although many human remains and manufactured articles were found, they appear to have excited little or no interest, and very few of them have been preserved.

I found at the Nassau Public Library, in the town of Nassau, two adult male Lucayan skulls, which had been preserved when a cave was opened in one of the out-islands. One of them, together with its lower jaw, was perfect and well preserved. It is No. 2 of the measurements and drawings which follow.

The other, No. 3 of this paper, is also an adult male skull, with the lower jaw, but it is in less perfect condition. It is stained and worn, and while the greater part of the face and of the roof of the cranium are nearly perfect the temporal and sphenoidal regions of one side and nearly all of the base of the cranium have been destroyed.

By the courtesy of the trustees of the Nassau Public Library I was given every facility for examining these two skulls and I was permitted to make the measurements and drawings which are here given.

I found a third skull in the office of Dr. J. C. Albury, a Nassau physician, and he kindly gave it to me for examination, with the request that it be presented in his name, after the completion of my work, to the Morton Collection of Crania Americana in Philadelphia. It is an adult female skull, without the lower jaw, but perfect in other respects. It is referred to in this paper as No. 1, and it was obtained in a cave on the island of New Providence.

For a third collection of bones of the Lucayan Indians I am indebted to Mrs. Blake, the wife of his excellency the governor of the Bahama Islands. This lady is a most enthusiastic and indefatigable student of nature, and her contributions to our knowledge of the flora and fauna of the islands are well known. She had herself visited a small cave in the interior of the island of New Providence and had superintended the excavations which resulted in the discovery of the fragments of two Lucayan skeletons, which she kindly placed at my disposal as soon as she learned that I desired to study them. They include the roof of a cranium with the frontal and parietals nearly complete, together with part of an occipital and broken maxillæ and malars, which probably belong to the same skeleton; the frontal, and fragments of the parietals, occipitals, and mandible of a second skull; three femora, three radii, three fibulæ, an innominate bone, a sacrum, fragments of two or more humeri, several vertebræ, and a number of fragments of various bones.

All of the skulls have certain very prominent and conspicuous characteristics, which give them a pronounced individuality, and these characteristic features are alike in all of them, so that the most superficial observer can not fail to note their striking similarity, and the first glance shows that they all belong to the same well-marked race. The common characteristics are easily recognizable also in the fragments found by Mrs. Blake.

The skulls are large and about equal in size to the average modern civilized white skull. They are very massive, and the bony matter is extremely dense and ivory-like, and although none of the skulls are those of individuals who had lived to old age the cranium is almost solid. Such sutures as remain visible are very deeply interdigitated. In both of the male skulls the lambdoidal suture was more than half an inch wide; and in one of them, and also in one of the fragments collected by Mrs. Blake, a series of irregularly rectangular wormian bones, three or four in number on each side, lie between the superior border of the occipital and the occipital border of the parietal. The lower jaw, which is preserved with both of the male skulls at the Nassau library, is peculiarly dense, thick, and massive, and its thickness opposite the second and third molar teeth is nearly equal to its height at the same point. The skulls are round or approximating to a spherical shape and they are extremely brachycephalic, the greatest width being at least equal in all of them to nine-tenths of the greatest length. The parietal eminences are very large and prominent, giving to the outline, in vertical view, a striking resemblance to an infant skull. They are very prognathous, and the prognathism is due in part to the protrusion of the superior maxilla and its alveolus, but the prognathous outline is exaggerated by the protrusion of the symphisis of the lower jaw far beyond its alveolus, thus rendering the point of the chin very prominent.

The skulls are artificially flattened to so great an extent that the distinction between the frontal and the coronal portion of the frontal bone is obliterated. The male skulls are somewhat more flattened than the female, but all present bilateral asymmetry from pressure. The occipital

region is also modified by pressure, and it is possible that the protrusion of the chin, the thickness of the ramus of the lower jaw, and the other peculiarities of the jaw may be due to the same cause.

The surfaces and lines for the attachment of muscles are extremely prominent in all the skulls, and all the processes and ridges are very strongly marked. Even the female skull has well-marked temporal ridges, large mastoid processes, sharply defined muscular attachments, and presents every indication of great muscular development, but the great temporal ridges and mastoid processes of the male skulls, the muscular attachments on the occipital and those on the mandible, and the great overhanging superciliary ridges give to these skulls a bestial expression and indicate that their possessors must have been unusually muscular men. Even the female skull is bold and strong, with prominent features and markings, but as compared with the male skulls it is soft and delicate in its outlines and in strong contrast to the male skulls. In fact, the sexual differences are extremely well marked, and all the peculiarities in which male skulls usually differ from those of females are unusually conspicuous in both the male skulls.

Measurements of three adult Lucayan skulls.

	No. 1.	No. 2.	No. 3.
Sex	Female.	Male.	Male.
Cubic capacity			
Glabello-occipital length. (This, when measured from the glabella to the lambdoidal suture, is no greater than when measured to the most prominent point of the sagittal suture)	*mm.* 154	*mm.* 162	*mm.* 170
Ophryo-occipital length	136	135	134
Vertical index	88	83	79
Minimum frontal diameter (between temporal ridges)	90	95	94
Frontal diameter between outer edges of orbital processes	105	111	108
Frontal diameter between angles of articulation with parietal and sphenoid	106	115	122
Greatest breadth	S. 140	P. 147	
Cephalic index	90	92	
Horizontal circumference (over external orbital processes and parietal eminences)	492	517	534
Frontal longitudinal arc	113	106	82
Parietal longitudinal arc	110	133	91
Occipital longitudinal arc	119	107	
Total	342	346	
Vertical transverse arc over bregma	297	311	
Length of foramen magnum	32	32	
Breadth of foramen magnum	29	31	
Basi-nasal length	96	100	
Basi-alveolar length	97	103	
Gnathic index	101	103	
Inter-zygomatic breadth	140	141	141
Inter-malar breadth	121	121	119
Ophryo alveolar length	157	166	171
Naso-alveolar length	62	75	74
Facial index	51	62	62
Nasal height	26	32	30
Nasal width	17	17	16
Nasal index	65	53	53
Orbital width	36	39	39
Orbital height	32	37	35
Orbital index	89	95	89
Palato-maxillary length	50	57	54
Palato-maxillary breadth	65	66	62
Palato-maxillary index	130	116	115
Lower jaw			
Symphisial height		35	35
Coronoid height		67	66
Condyloid height		58	57
Gonio-symphysial length		99	105
Inter-gonial width		102	104
Breadth of ascending ramus		36	37

Norma verticalis.—As a result of the artificial flattening to which the skulls have been subjected, the whole frontal region of the frontal bone, above the orbits and the temporal ridge, is visible from above; and the outline of the cranium, when viewed from above, approximates to a circle, about a center which is at the bregma or very near it. In the frontal and occipital regions the circular outline is somewhat flattened.

In the male skulls, No. 2 and No. 3, and in the fragments of the two crania collected by Mrs. Blake, the frontal eminences are absent, and in the female skull, No. 1, they are so slightly marked that they are hardly recognizable, while in all the crania the parietal eminences are very prominent and well defined. The skulls are extremely brachycephalic, and the greatest breadth, which is between the very prominent parietal eminences, is nearly equal to the greatest length, the cephalic index being 90 in the female, No. 1, and 92 in the perfect male skull, No. 2. The diameter between the malar processes of the frontal is very much less than the greatest width. All the skulls are conspicuously phænozygous, and nearly all of the zygomatic arch is visible in vertical view.

Norma lateralis.—The female skull, No. 1, rested behind on the occipital condyles and on the dorsal edge of the foramen magnum, while both of the male skulls, No. 2 and No. 3, rested behind on the tips of the enormous mastoid processes. In both of the male skulls the glabella and the superciliary ridges are very prominent and overhanging, but they are absent in the female skull. In all the skulls the frontal bone is so flattened that the coronal region is obliterated, and an uniform surface extends from the upper margins of the orbits nearly or quite to the parietals.

In both male skulls this surface is almost flat, and a ruler laid against the frontal on the middle line touches the bone from the glabella to within half an inch of the bregma, which latter point is distant from the edge of the ruler one-fourth of an inch in No. 2 and three-eighths of an inch in No. 3. In the female skull the frontal is less flat; the frontal eminences, although slightly marked, are visible, and the edge of a ruler laid against the frontal on the middle line is separated from the bregma by an interval of half an inch, and from the glabella by one of three-eighths of an inch. The occipital squama is flattened artificially, and the flattened region extends over the lambdoidal suture on to the parietals, which overhang the occipital, so that a point on the sagittal suture is as far distant in a straight line from the fronto-nasal suture as the most prominent part of the occipital. In all the skulls, and also in one of the fragments in Mrs. Blake's collections, there is a well-marked and prominent transverse occipital torus.

In one skull the parietal longitudinal arc is very much greater than either the frontal or the occipital, while in another both the occipital and the frontal portions exceed the parietal.

	No. 1.	No. 2.	No. 3.
Frontal longitudinal arc	113	106	82
Parietal longitudinal arc	110	133	91
Occipital longitudinal arc	119	107	
Total longitudinal arc	342	345	

The temporal ridge is very large and sharply defined in all the skulls on the frontal and also on the temporal, and in the female skull, No. 1, it is well marked across the parietal also. On one side of the male skull, No. 2, there is an epipteric wormian bone articulating with the frontal, parietal, temporal, and sphenoid, and in the largest fragment in Mrs. Blake's collection this appears to be the case also. This fragment consists of a frontal which is nearly perfect, the two parietals and a series of triquetral bones in the lambdoidal suture. On the right side the anterior inferior angle of the parietal is crossed by a suture, below which there is a small broken fragment of bone, which is not a portion of a normal alisphenoid, and there seems to be no reason for doubting its identity with the epipteric of skull No. 2. It is remarkable that two skulls in a collection of four should present this exceptional peculiarity. In the female, No. 1, the bridge of the nose is much flatter and wider than in the male skulls, and the curvature is continuous from one orbit to the other; while in the male skulls the nasals protrude beyond the level of the nasal processes of the max-

illæ. The profile of the nose is deeply concave in all, but most so in the males. In the female there is no depression at the fronto-nasal suture, while in the males this suture lies in a deep concavity which is overhung by the glabella. In all the skulls there is a well marked nasal spine at the premaxillary suture.

The infra-orbital and canine fossæ are distinct in all the skulls, but not strongly marked. On only one side of one skull was the supra-orbital notch converted into a foramen. The orbits are rectangular in outline, especially in the male skull, and in all they are oblique; the outer margin being at a lower level than the inner, so that the eyes slope downwards away from the nose. The face is broad and short, but much of the breadth is due to the flattening of the very broad and prominent malars. The skulls are all phænozygous in vertical view, and the inter-zygomatic breadth is greater than the inter-malar, and also greater than the frontal between the external orbital processes, but it is less than the inter-parietal.

	No. 1.	No. 2.	No. 3.
Breadth of nose between lachrymals	22	25	26
Breadth between inner margins of external orbital processes	94	104	99
Breadth between outer margins of same	105	111	108
Greatest breadth	140	147	
Inter-zygomatic breadth	140	141	141
Inter-malar breadth	121	121	119

The cranial sutures are simple in No. 1, but very much denticulated in the others, and the lambdoidal suture is very wide, having in both the male skulls a width of more than half an inch. In No. 2, and in a fragmentary occipital squama in Mrs. Blake's collection, there are numerous minute irregular ossicles in the parietal portion of this suture; and in No. 3, and also in the most complete of the crania in Mrs. Blake's collection, there is a series of nearly rectangular triquetral bones between the parietal and the occipital squama, thus converting this portion of the lambdoidal suture into two parallel sutures about half an inch apart, with a series of transverse sutures connecting them at intervals of about half an inch.

The mastoid processes are very large and prominent, and the digastric grooves very deep in all the skulls, but peculiarly so in the male skull.

The male skulls, 2 and 3, have the mandible, and Mrs. Blake's collection includes one mandible. They are very massive, and the thickness of the ramus under the second and third molars is equal to about five-sixths of its height at the same point, $\frac{75}{90}$ in No. 2 and $\frac{85}{110}$ in No. 3.

The coronoid process and sigmoid notch are very prominent. The angle in both No. 2 and No. 3 is 120°. The chin is angular and square in vertical view, and in profile view the mental process projects boldly beyond the alveolus. The processes on the inner surface are very large and conspicuous.

The antero-posterior diameter of the ascending ramus in the plane of the alveolar border is 39^{mm} in No. 2 and 37^{mm} in No. 3. The gonio-symphysial length is 99^{mm} in No. 2 and 105^{mm} in No. 3, and the intergonial width is 102 in No. 2 and 104 in No. 3.

Professor Turner (Report on the Human Crania and other bones of the skeletons collected during the voyage of H. M. S. *Challenger*) has called attention to the fact that certain variations in in human crania which are exceptions in man, but normal in certain other mammals, occur more commonly in savage than in civilized races, and he mentions the presence of an inter-parietal bone, the occurrence of a squamoso-frontal articulation in the pterion, a maxillo-frontal articulation in the inner wall of the orbit, a spheno-pterygoid foramen, and paramastoid processes as examples of such structures. In this connection the fact that two out of the four Lucayan skulls, or 50 per cent. of this little collection, have epipteric bones in the squamoso-frontal articulation is extremely interesting, and Turner shows that this peculiarity occurs very much more frequently in the skulls of savage races collected by the *Challenger* than in Europeans.

The four Lucayan skulls, however, present two cases or 50 per cent. of triquetral bones in the lambdoidal suture, and as there is no reason for attaching any particular morphological impor-

tance to this peculiarity, it seems probable that savage or primitive races may be more variable or irregular as regards their osteological characteristics than civilized races, quite irrespectively of the morphological significance of these peculiarities.

These notes contain about all that is known of the ethnological characteristics of the Lucayans. No other skulls have ever been described, and the chronicles of the conquest give us little additional information.

The Spanish conquerors had no time nor inclination for the pursuits of peace, and the rapidity with which discovery followed discovery prevented them from devoting any time to the study of the natives. Then, too, what little interest the simple and primitive Lucayans may have excited was soon forgotten as the higher civilization and the wealth of the main-land became known to the explorers. The very scanty references to the people of the islands which Columbus visited on his first voyage are in most cases so worded as to permit of uncertainty whether they refer to the natives of the Lucayas, those of Cuba, or those of New Spain, or to the inhabitants of all of these islands, and there is very little which applies to the Lucayans specifically, except the notes which Columbus himself jotted down in his log-book while cruising among the Lucayas before he had met with other people. He says:

October 12, they came to the boats of the vessels swimming, bringing to us parrots, cotton-thread in balls, and spears, and many other things, which they bartered for others we gave them, as glass beads and little bells. Finally they received everything and gave whatever they had with good will, but I thought them to be a very poor people. All of them go about naked as when they came into the world, even the women [this he found next day to be an error], although I saw but one very young girl, all the rest being young men, none of them being over thirty years of age, their forms being very well proportioned, their bodies graceful, and their features handsome; their hair is as coarse as the hair of a horse's tail and cut short; they wear their hair over their eyebrows, except a little behind, which they wear long and never cut. Some of them paint themselves black, and they are of the color of the Canary Islanders, neither black nor white; and some paint themselves white and some red and some whatever they find, and some paint their faces and some their whole bodies, and some their eyes only and some their noses only. They do not carry arms and have no knowledge of them. They have no iron; their spears consist of staffs without iron, some of them having a fish-bone in the end, and others other things.

The islands consist entirely of limestone, and no other rocks occur; but Mrs. Blake has collected a number of beautifully finished stone weapons and implements, which have been found from time to time in the islands. These must have been procured in the larger Antilles or on the main-land.

As a body they are of good size, good demeanor, and well formed. I saw some with scars on their bodies, and to my signs asking them what they meant they answered in the same manner that people from neighboring islands wanted to capture them and they had to defend themselves, and I did believe and do believe that they came from the main-land to take them prisoners.

He says in another place that these enemies came from the northwest, in which direction the *tongue of the ocean*, some 70 miles wide, separates the islands he visited from the large island of Abaco, while the Straits of Florida, of about the same width, separate Abaco from the main-land.

On Saturday, October 13, he writes:

At dawn many of these men came to the shore; all are, as already said, youths of good size and very handsome. They have broader heads and foreheads than I have ever seen in any other race of men, and their eyes are very beautiful, not small. All without exception have very straight limbs and no bellies and are very well formed. They came to the ship in canoes made out of trunks of trees, all in one piece, and were wonderfully built according to the locality; in some forty or fifty men came, others were smaller, and in some only one man came. They paddled with a paddle like that of a baker, and made wonderful speed, and if it capsized all began to swim and set it right again and bail out the water with calabashes, which they carry.

I am told that one of these large canoes, with its paddles, was found a few years ago in a cave on Andros Island, but it was not preserved.

On October 16 he writes:

The men I sent for water told me that the houses were well swept and perfectly clean, and that their beds and clothing looked like cotton nets, which they called hamacas. Here they found that the married women wore cotton breeches, the young girls not, except a few who were already of the age of eighteen; and they had their dogs (mastines) and branchetes; and here they found one wearing in his nose a piece of gold of the size of half a castellano, on which were letters. He did not dare to barter it.

The other chroniclers tell us little in addition, except that their language was the same, or nearly the same, as that spoken in Cuba and in part of New Spain, and that they were larger and better formed than the natives of New Spain, but like them in all essential particulars.

Columbus' statement that the Lucayans were of good size, with large eyes and broader foreheads than he had ever seen in any other race of men agrees perfectly with the results which have been reached through the study of the skulls which are here described, since their most conspicuous characteristics are the great breadth noted by Columbus, and the massiveness and solidity of the head, and this latter characteristic is mentioned by the Spanish chroniclers. We may, therefore, unhesitatingly decide that they are the remains of the people who inhabited the islands at the time of their discovery, and that these people were a well-marked tribe of that North American Indian race which was at that time distributed over the Bahama Islands, Hayti, and the greater part of Cuba. As these islands are only a few miles from the peninsula of Florida, this race must at some time have inhabited at least the southeastern extremity of the continent, and it is therefore extremely interesting to note that the North American crania which exhibit the closest resemblance to those from the Bahama Islands have been obtained from Florida.

Wyman (fourth annual report of the trustees of the Peabody Museum of Amer. Archæology and Ethnology, Boston, 1871, p. 12) and Ecker (Zur Kenntniss des Körperbaues früherer Einwohner der Halbinsel Florida; Archiv f. Anthropologie, 1878, x, p. 101) have described skulls from small islands near Cedar Keys, on the west coast of Florida, and Ecker gives many reasons for believing that they are the remains of the race which inhabited the peninsula at the time of its discovery. His collection consisted of twenty skulls, more or less perfectly preserved, and fragments of a much larger number of skeletons, collected from a sand-hill near Cedar Keys by Dr. Schmidt; while Professor Wyman's collection from the same vicinity, and quite possibly from exactly the same spot, contained eighteen crania, so that the race is represented by thirty-eight skulls.

Ecker states, as the result of the examination of his own material and comparison with Wyman's description, that they were a very tall and muscular people; and Brinton (Notes on the Florida Peninsula, its literary history, Indian tribes, and Antiquities, Philadelphia, 1859; Smithsonian Reports, 1866) says of some human skeletons which had been uncovered by the action of the water at Tampa that he was assured by an intelligent gentleman of Manitee, who had repeatedly visited the spot and examined the remains, that some of them were of astonishing size and must have belonged to men 7 or 8 feet in height. Ecker says that the skulls which he examined, were remarkable for their large size and for the very unusual thickness and the massive character of the bones.

The greatest breadth ranged from 161 to 134 centimeters, while the two Lucayan skulls measure 140 and 147 centimeters, respectively. The greatest length of the Florida skulls ranges from 198 to 163, while the mean for the three Lucayan skulls is 162. The cephalic index varies from 89 to 74.7; the adult skulls, and the male skulls especially, conforming to the higher number. The cephalic index of the Lucayan skulls is 90 in No. 1 and 92 in No. 2. The circumference of the Florida skulls is from 555 to 470 centimeters; that of the Lucayan skulls, 492, 517, 534. The skulls in both collections from Florida are remarkable, like those from the Lucayas, for their massive character and for the boldness and development of their muscular attachments, especially upon the occipital. They were artificially flattened like the Lucayan skulls, and Ecker states that many of the lower jaws were distinguished like those here described by their massiveness, thickness, weight, and by the strength of the muscular attachments. The upper jaws like those of the Lucayans give indications of maxillary prognathism, and the bones all indicate that their possessors were a race of large-sized and powerfully muscular people, resembling the Lucayans in this also.

It will be seen that while the Florida skulls are somewhat larger than those from the Bahama Islands the difference is not very great, and that in all other respects there is a very close agreement.

There can be no question that the Florida skulls are quite different from those of the Indians of the coast of the United States, and as there are vague references in the works of the early voyagers to a race of Florida giants, Ecker regards these skulls as evidence of the truth of these

statements, since he says that skulls of such size, capacity, thickness, and breadth, with such remarkable muscular impressions, must have belonged to a race of giants.

The Lucayan skulls are equally massive and strongly marked, but we know that the Lucayans were not giants although we are told that they were larger than the natives of Cuba and New Spain, and were of good stature.

Ecker quotes from many of the early writers statements to the effect that the natives of the lower part of the peninsula of Florida at the time of the discovery were giants. Thus Cabeza de Vaca, who visited Florida in 1527, says of its inhabitants that they are wonderfully well built, tall, and of great strength and activity, and that they carried bows as thick as an arm, and eleven or twelve spans long, and from them they shot with unfailing accuracy arrows with bone tips, and that he has seen one of those arrows buried a span deep in a pappel tree.

Ecker therefore decides that the skulls which he and Wyman have studied are those of this race of giants who are said to have been found in Florida at the time of the discovery. As the peninsula of Florida is only some 50 or 60 miles from the nearest Bahama Islands, the question of the relationship between these people and the Lucayans at once suggests itself. It will be noticed that most of the points upon which Ecker lays especial stress in his description are equally characteristic of the Lucayan skulls, although the latter have wider foreheads, are much more flattened, more prominently brachycephalic, and of a less bestial character.

We know from the Spanish chroniclers that the natives of the Lucayas, Cuba, and a part of Hayti spoke the same or nearly the same language, and were essentially alike in all particulars, although they differed in size, strength, and also in color, as well as in their degree of civilization. It is probable that they were all of the same race, with certain distinctive characteristics in each case, and as the keys and peninsula of Florida belong to the same geographical area we should expect to find there a branch of the same stem, and a comparison of the skulls which are here described with those described by Ecker and Wyman seems to indicate that this is the case, and that while the Florida skulls belong to a distinctly lower race they share with the Lucayan skulls all their most characteristic features.

While Columbus says the Lucayans are well built and athletic and that they are larger than the Cubans, who again are larger than the natives of Hayti, he does not speak of them as giants, and we must believe that they did not depart essentially from the Spanish average. It will be seen that their measurements are essentially like those given by Ecker, and that the difference in size between them and the Florida tribe was slight. The long bones which I found, and also the few perfect ones which Ecker examined, were not gigantic but very near the mean for modern Europeans, and there is nothing to indicate unusual size except the size, weight, and muscular development of the skull. The Lucayans, who were not giants, have skulls which are equally massive, presenting the same indications of great muscular development, so that it is unsafe to decide from this sort of evidence that the Florida skulls belonged to a gigantic race. In order to determine how far the size of the skull can be used as a criterion of stature I have compared the mean length, breadth, and circumference of 163 German men, as given by Schaaffhausen in "Die Anthropologische Sammlung des Anatomischen Museums der Universität Bonn, with those of the six German male giants in the same collection, and the result shows that the deviation of the Lucayan skulls, the Florida skulls, and those of the six male German giants from the mean for German men are all so slight as to be insignificant, and that the size of the skull is no criterion as to the bulk of the body.

The Florida skulls may have belonged to a race of giants or to men of unusual stature, but as the long bones present no indications of unusual size, and as the Lucayans certainly were not giants, it seems probable that the records of a race of giants in Florida are travelers' tales, and that the Florida tribe was simply an offshoot from the race which inhabited the great Antilles at the time of the discovery.

EXPLANATION OF THE PLATES.

PLATE I. An adult male Lucayan skull, half the natural size. From a drawing made by the author from skull No. 2 of the collection in the Public Library at Nassau, New Providence.

II. An adult male Lucayan skull, half the natural size. From a drawing made by the author from skull No. 3 of the collection in the Public Library at Nassau, New Providence.

III. Basilar view of the skull shown in Plate I, one-half natural size. From a photograph.

IV. The skull shown in Plates I and III.

V. Mandibles from the collection in the Public Library at Nassau, New Providence, half the natural size. From drawings by the author. Figure 1 is the mandible of the skull shown in Plate II, and figures 2 and 3 are from the mandible of the skull shown in Plate I.

VI. An adult female Lucayan skull, from a photograph, one-half the natural size, of the specimen presented to the author by Dr. J. C. Albury, of Nassau, New Providence. The skull was tilted forwards and the occiput was raised in order to exhibit the frontal region of the cranium for comparison with Plate VII.

VII. Facial aspect of the same skull when resting upon the alveolar border and the occipital condyles. From a photograph.

VIII. The adult female skull shown in Plates VI and VII. From a photograph.

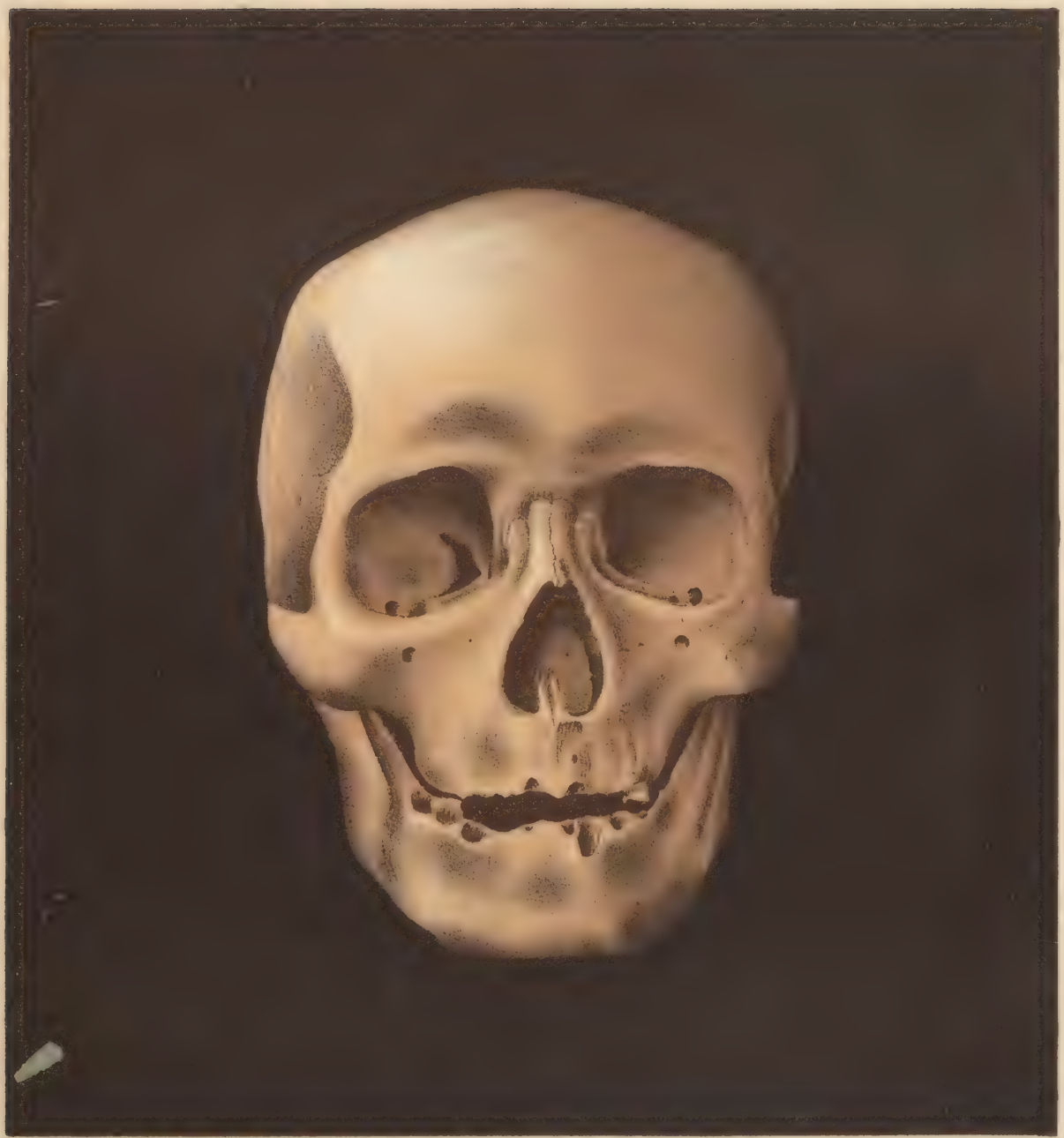
IX. The adult female skull shown in Plates VI and VII. From a photograph.

X. The right side of the adult female skull shown in Plates VI and VII. From a photograph.

XI. Basilar view of the adult female skull shown in Plates VI and VII. From a photograph.

XII. The left side of the adult female skull shown in Plates VI and VII. From a photograph.

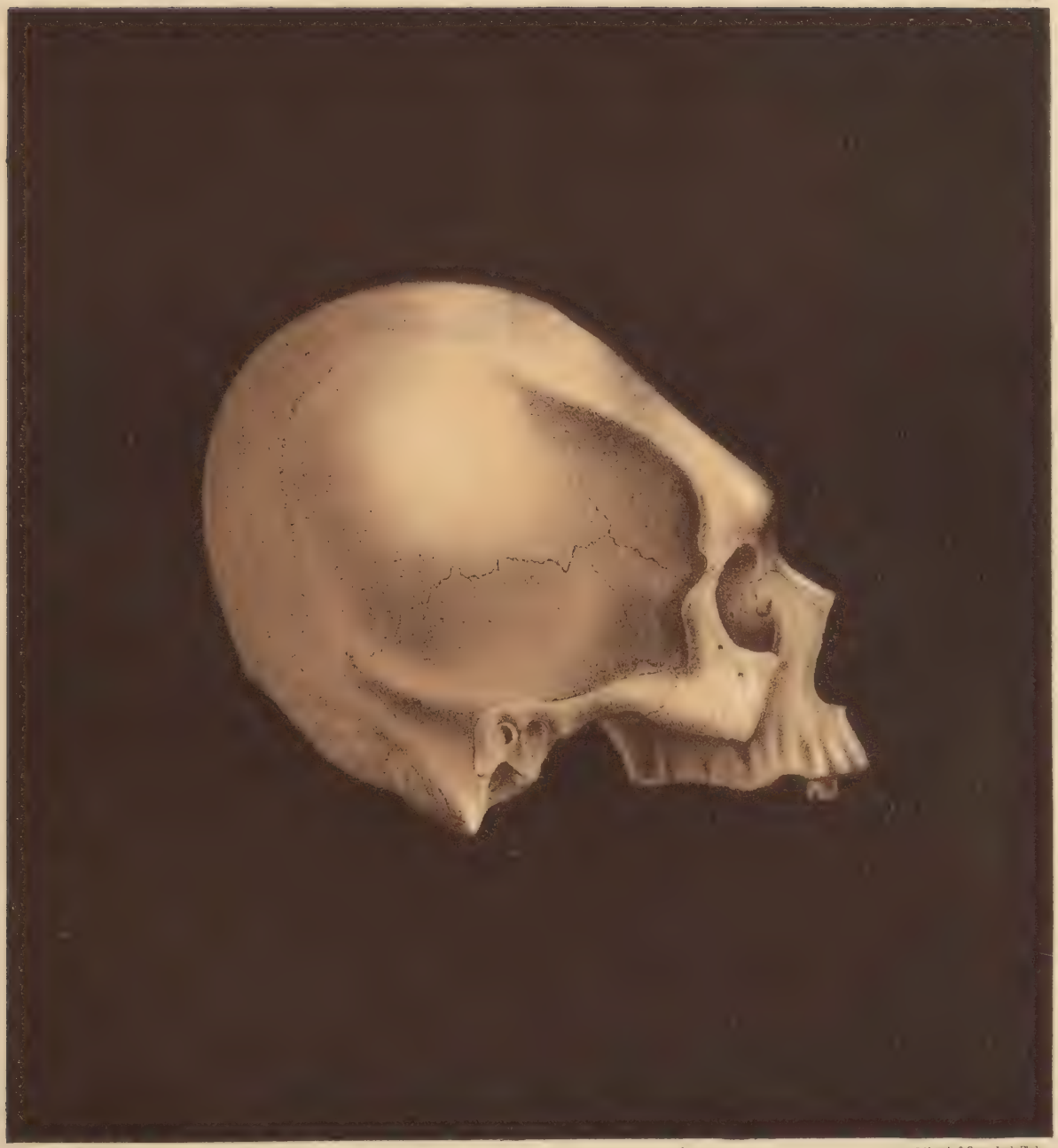
END OF VOLUME IV.



Drawn by W.K.Brooks.

Geo.S.Harris & Sons, Lith.Phila.

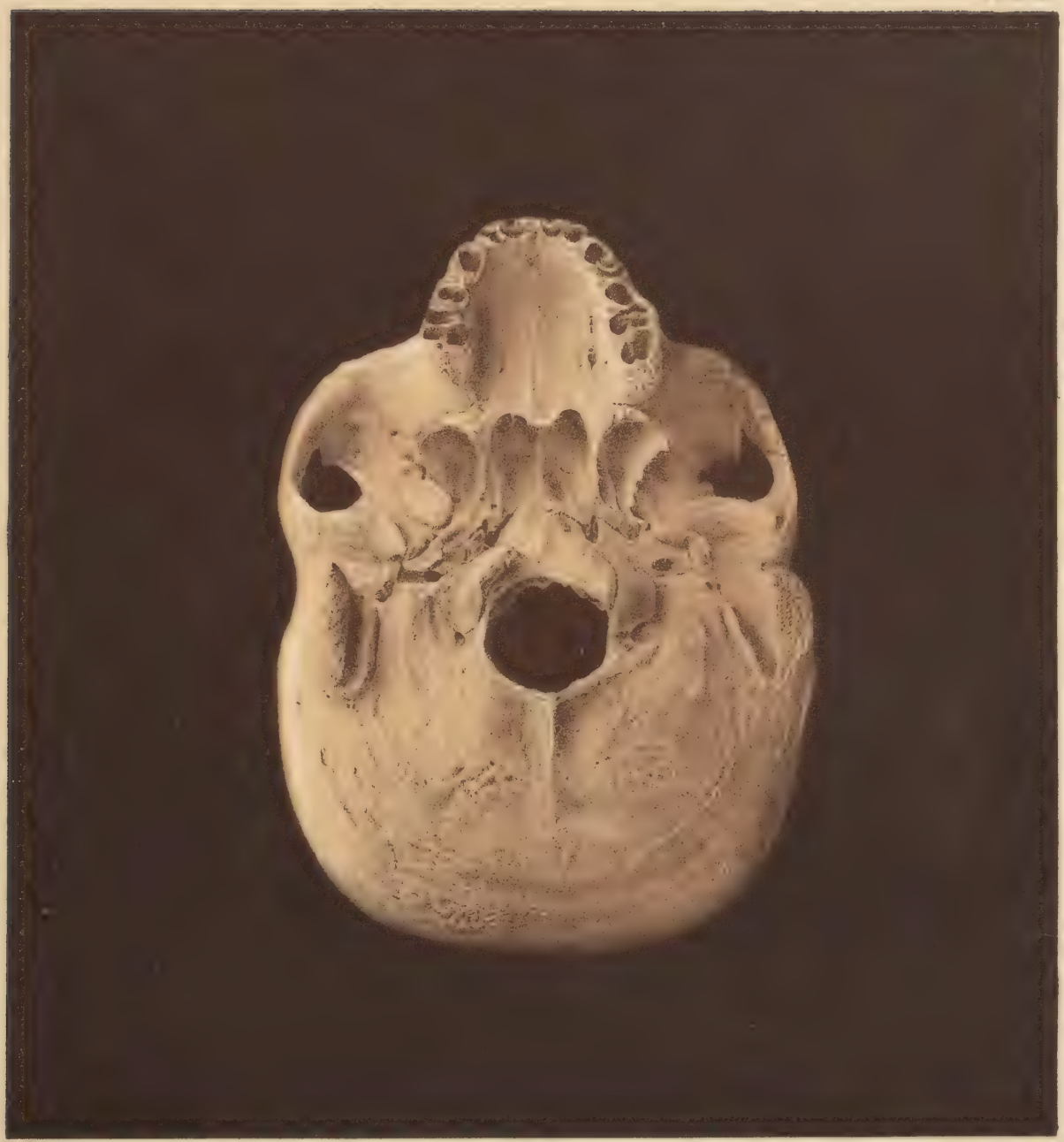
ADULT MALE.



Drawn by W.K.Brooks

Geo.S.Harris & Sons, Lith. Phila

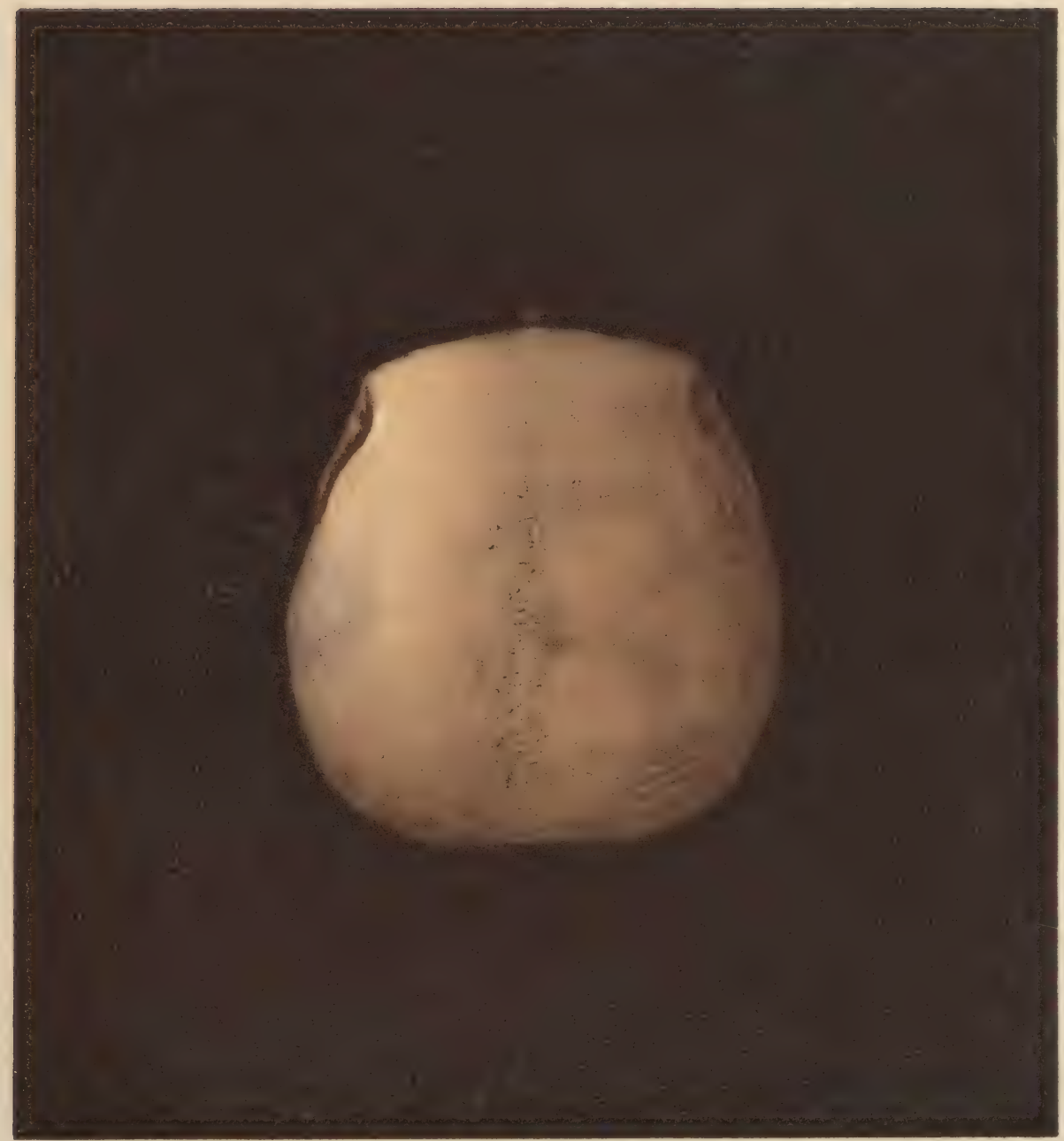
ADULT MALE.



From a Photograph

Geo.S.Harris & Sons, Lith. Phila.

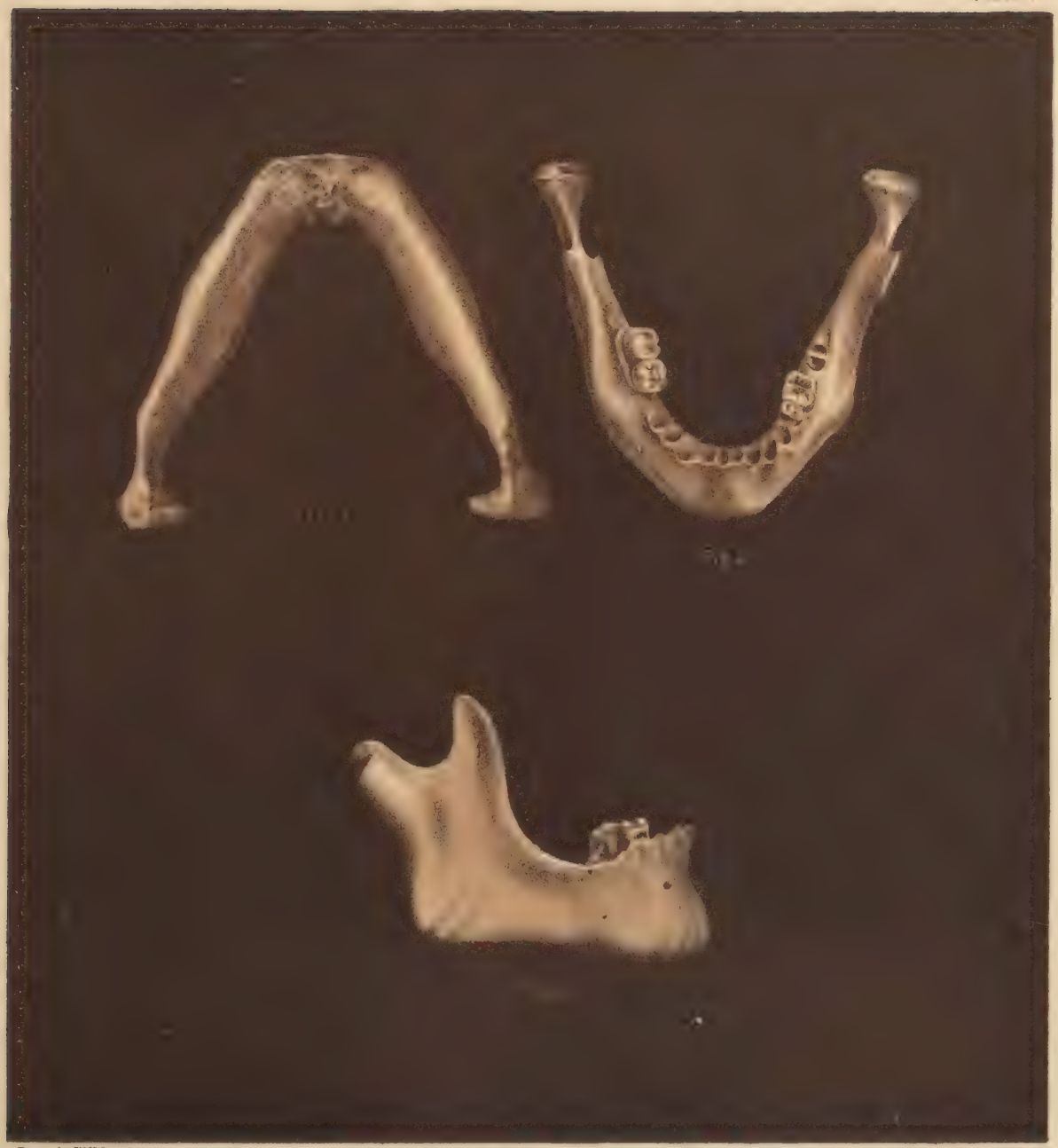
ADULT MALE.



From a Photograph

Geo S Harris & Sons Lith Phila

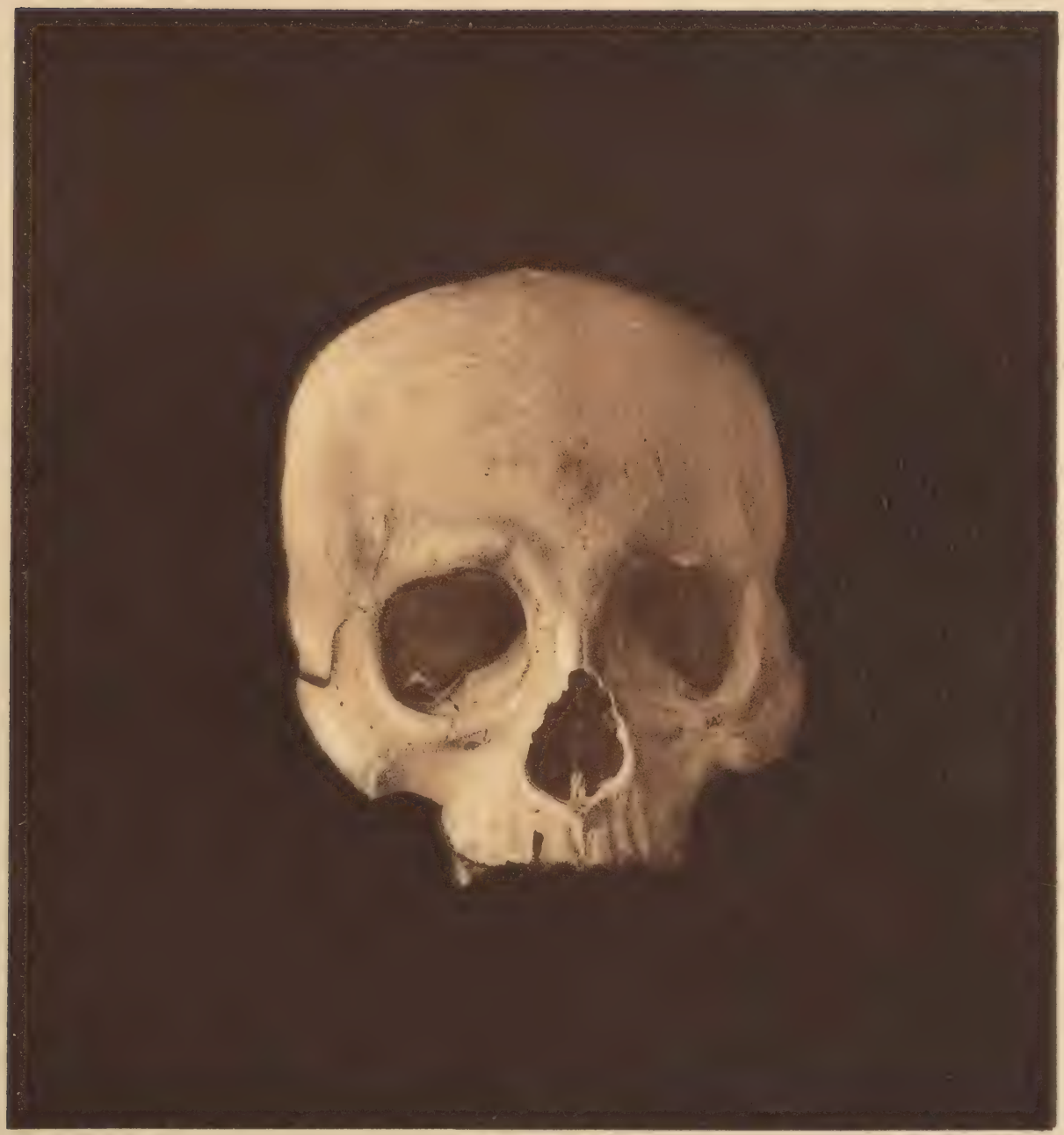
ADULT MALE.



Drawn by W.K.Brooks

Geo.S Harris & Sons, Lith. Phila.

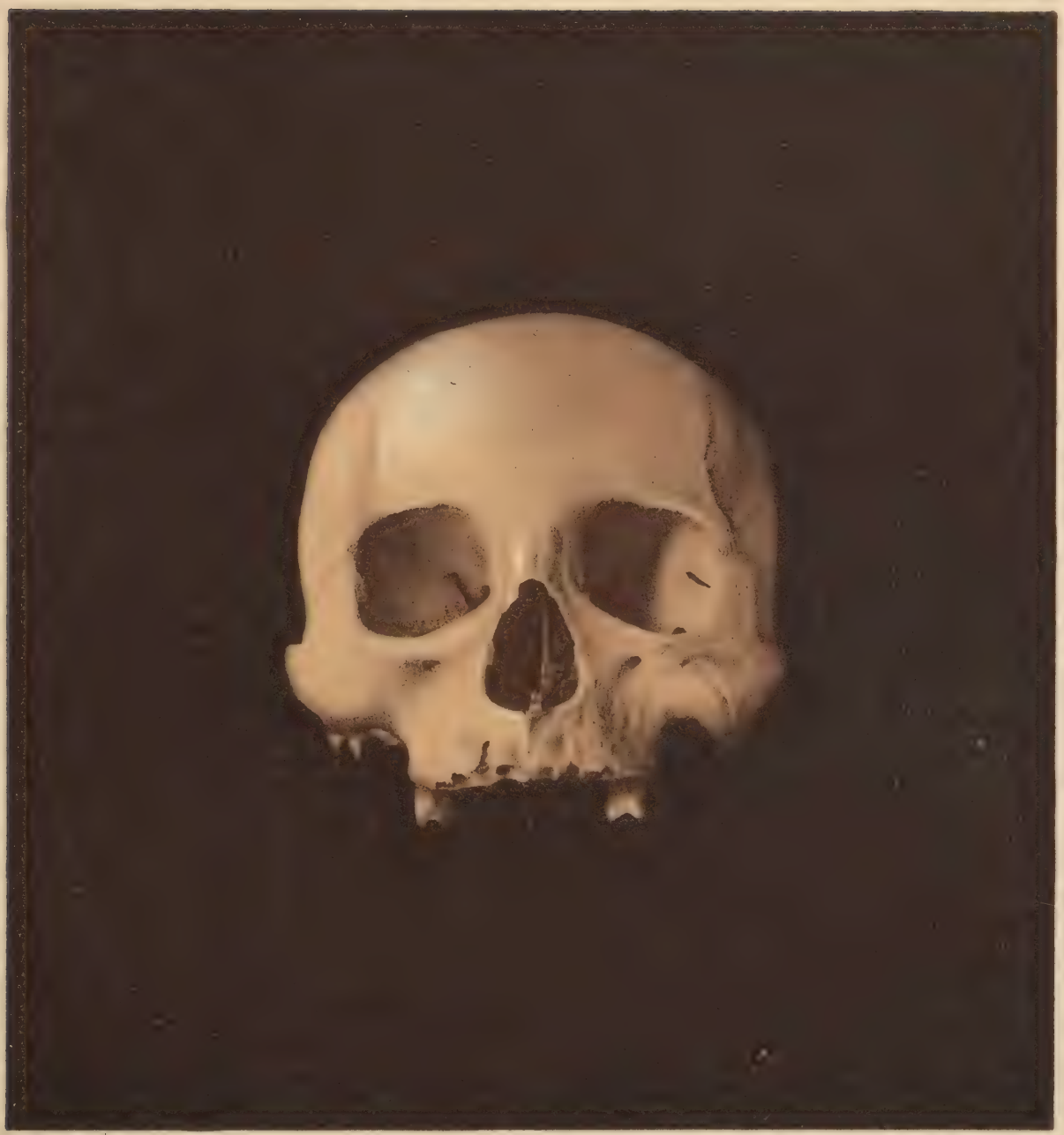
ADULT MALE.



From a Photograph

Geo S Harris & Sons Lith Phila

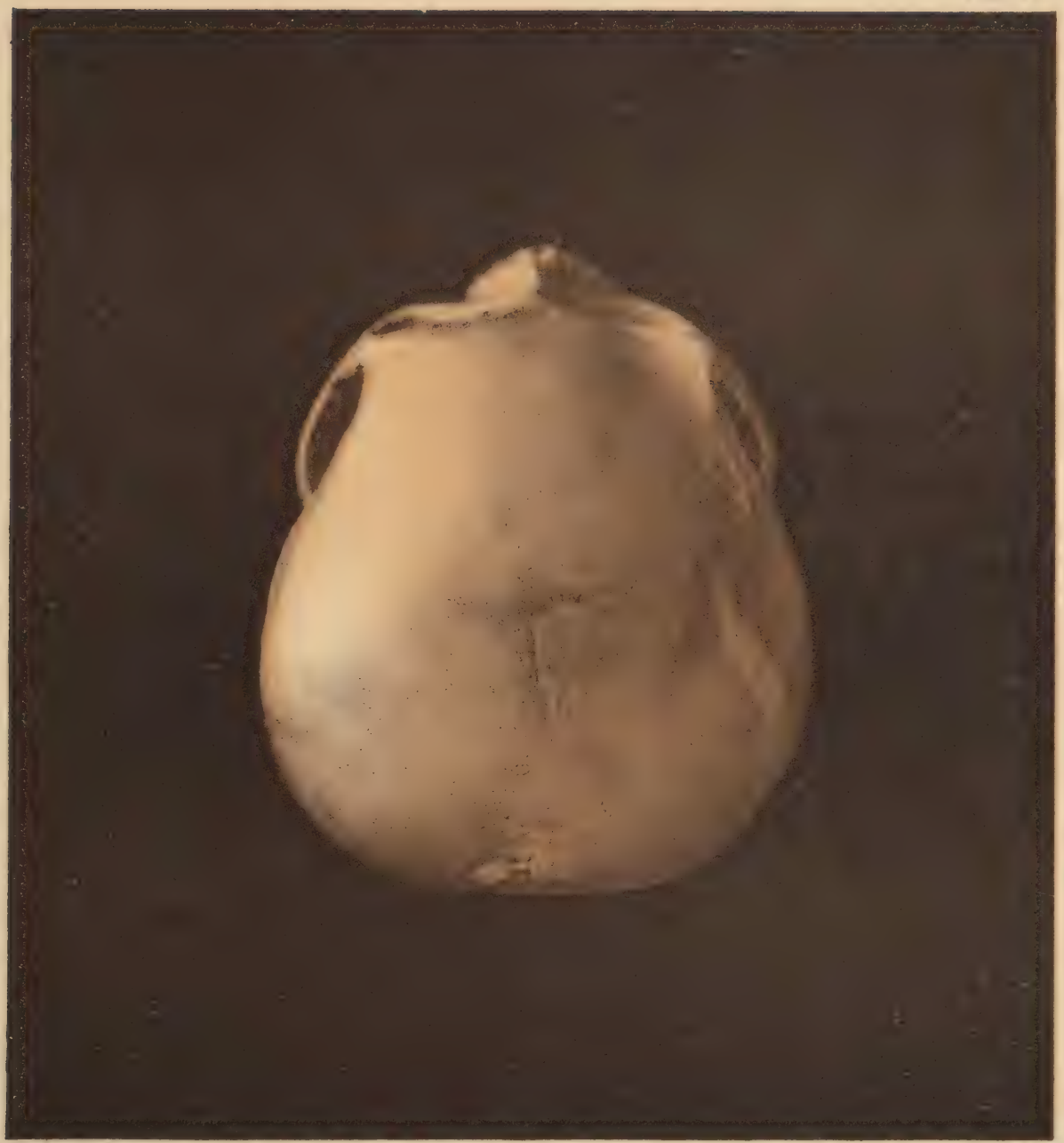
ADULT FEMALE.



From a Photograph.

Geo. S. Harris & Sons, Lith. Phila.

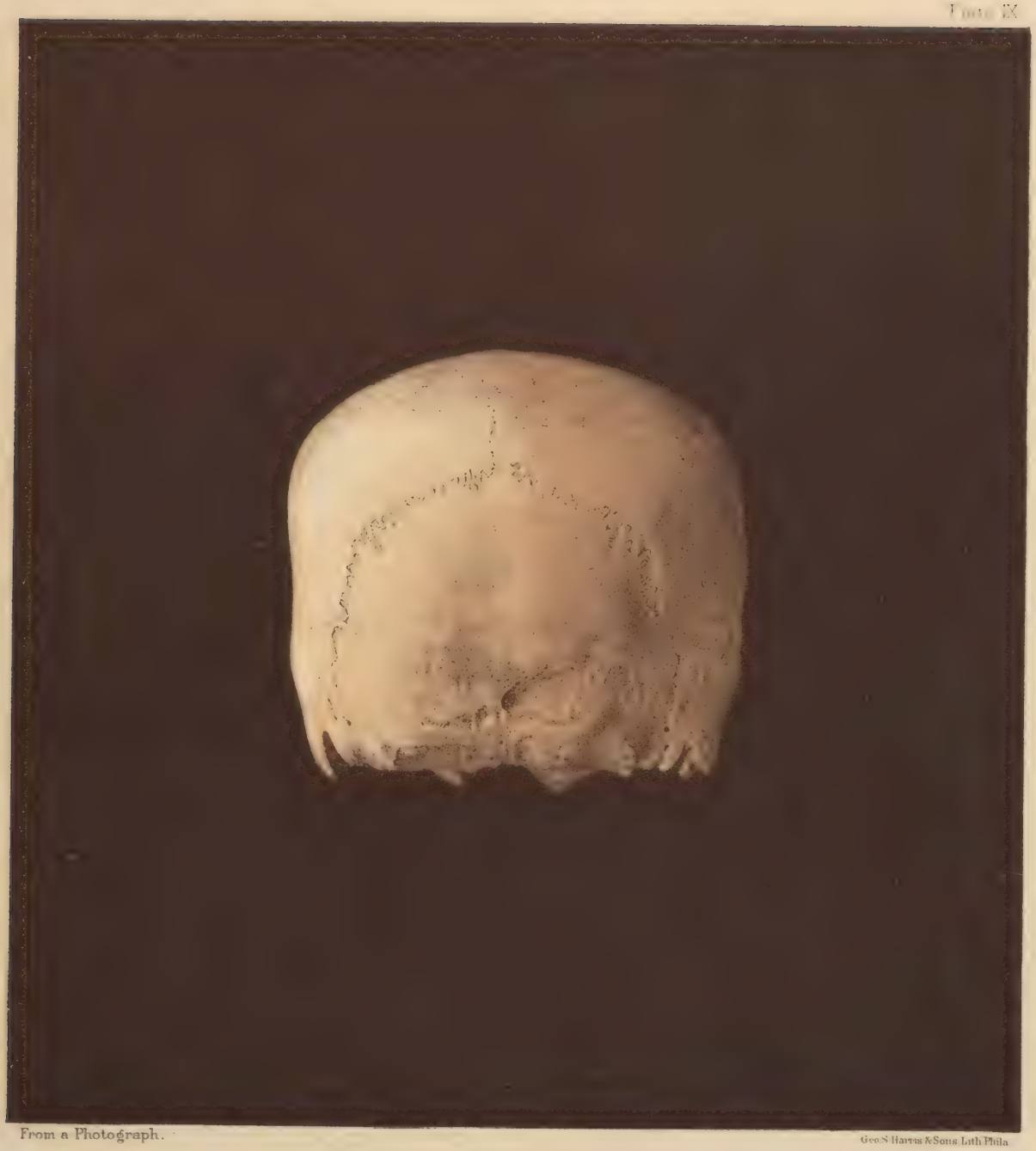
ADULT FEMALE.



From a Photograph.

Geo S Harris & Sons Lith. Phila.

ADULT FEMALE.



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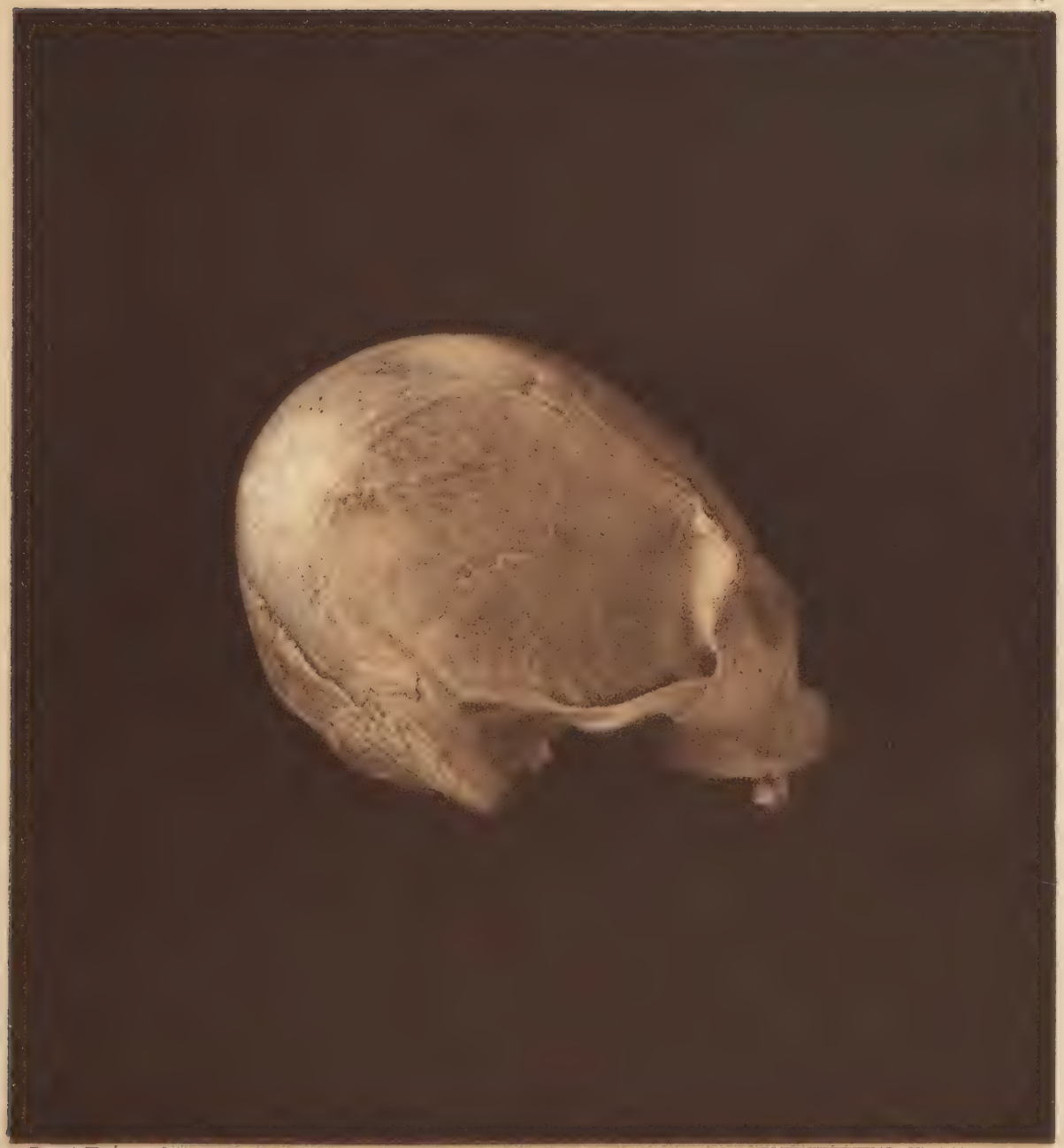
Geo.S.Harris & Sons Lith.Phila

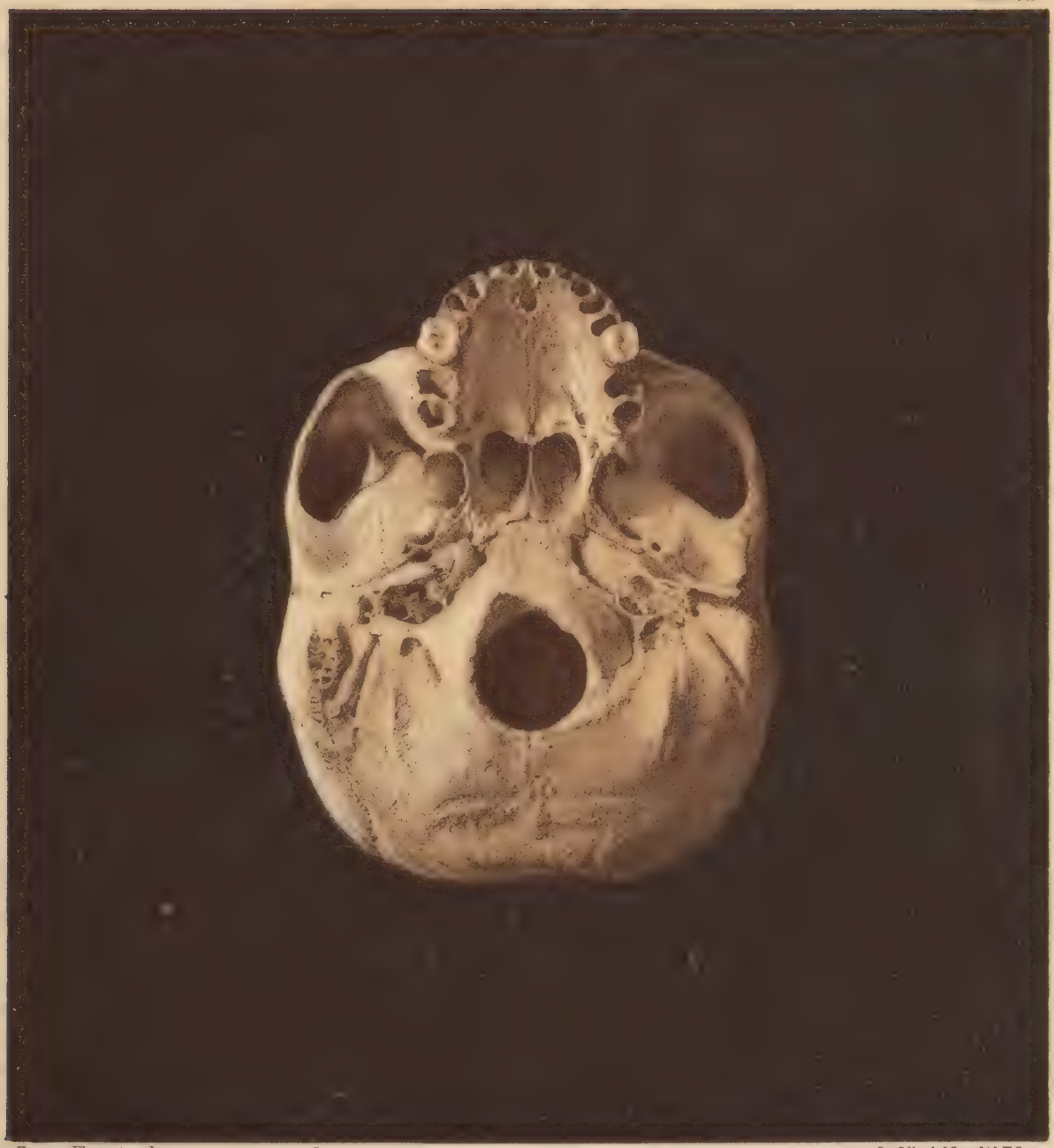
ADULT FEMALE.



From a Photograph.

Geo.S Harris & Sons lith. Phila.

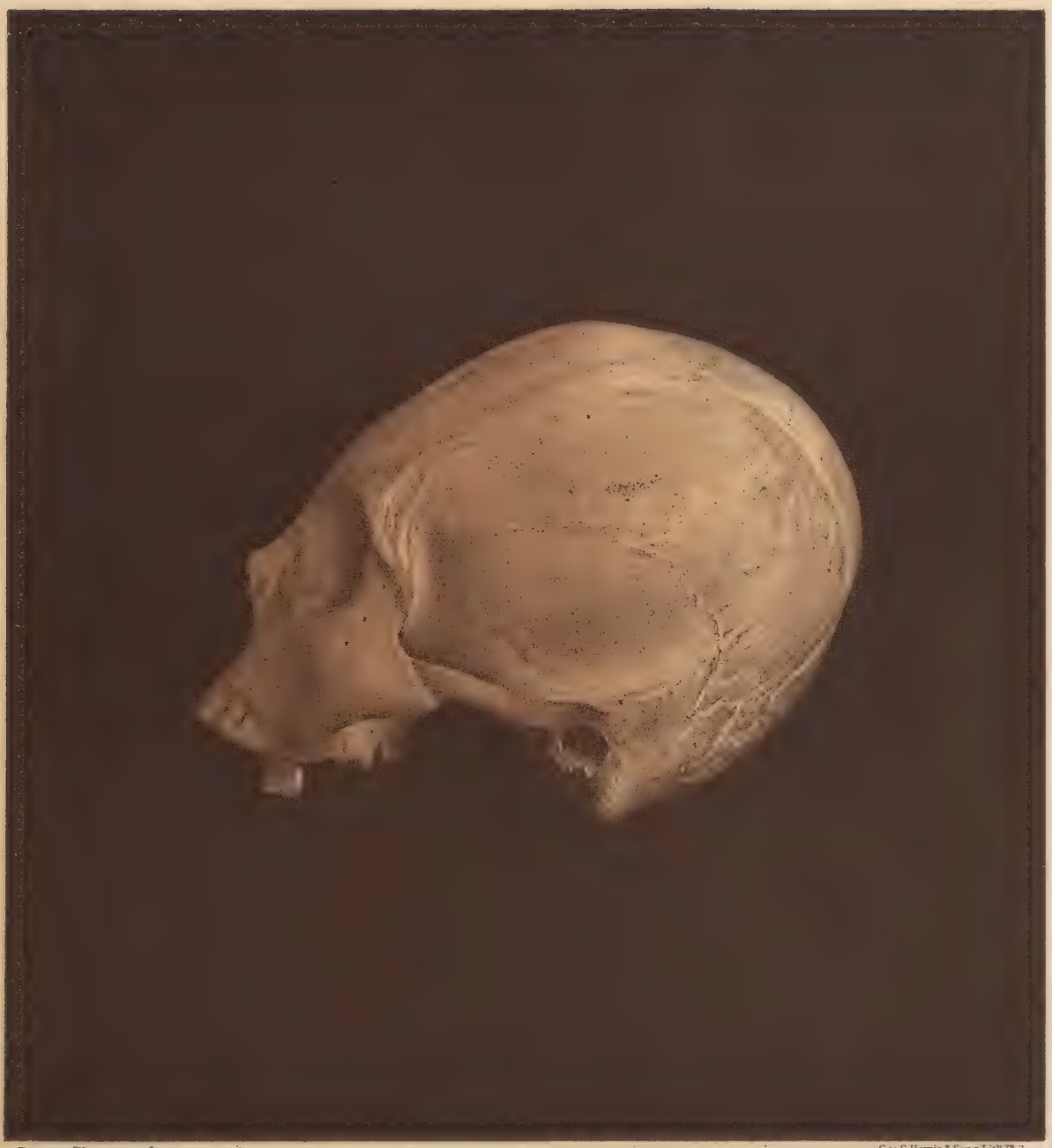
ADULT FEMALE.



From a Photograph.

Geo.S.Harris & Sons, Lith. Phila

ADULT FEMALE.



From a Photograph.

Geo. S. Harris & Sons, Lith. Phila.

ADULT FEMALE.